In the claims:

1. (Currently Amended): An endoscope, which comprises:

an intracorporeal portion, configured for insertion into a body, and including:

a non-irradiative electromagnetic sensor for tissue characterization,configured to be placed proximally to an edge of a tissue for characterization and to produce electromagnetic fields, said characterization being without penetration by said non-irradiative electromagnetic sensor of the tissue being characterized, said characterization being performed by measurement of reflections of said electromagnetic fields following interaction with said tissue; and

a communication line, on which the electromagnetic sensor is mounted; and

an extracorporeal portion, configured for manipulating the intracorporeal portion.

2. (Original): The endoscope of claim 1, wherein the communication line is formed as an instrument bundle.

3. (Previously Presented): The endoscope of claim 2, wherein the instrument bundle extends beyond a distal-most end of the endoscope, with respect to an operator, and a distal-most end of the instrument bundle may be manipulated, extracorporeally, to bring the electromagnetic sensor to contact with a tissue, for characterization.

4. (Previously Presented): The endoscope of claim 1, wherein the intracorporeal portion further includes an instrument channel, and wherein the electromagnetic sensor for tissue characterization is inserted into the instrument channel.

5. (Previously Presented): The endoscope of claim 4, wherein the electromagnetic sensor for tissue characterization may be removed from the instrument channel and replaced with another instrument.

6. (Previously Presented): The endoscope of claim 4, and further including a catheter, wherein the electromagnetic sensor is inserted into the catheter, and the catheter is inserted into the instrument channel.

7. (Original): The endoscope of claim 6, wherein the catheter extends beyond a distal-most end of the endoscope, with respect to an operator, and a distal-most end of the catheter may be manipulated independently of the distal-most end of the endoscope.

8. (Original): The endoscope of claim 1, wherein the intracorporeal portion further includes an optical channel for an optical instrument.

9. (Previously Presented): The endoscope of claim 1, wherein the optical instrument is configured to observe the electromagnetic sensor.

10. (Original): The endoscope of claim 1, wherein the intracorporeal portion further includes a second instrument.

11. (Original): The endoscope of claim 10, wherein the second instrument is selected from the group consisting of an optical sensor, an X-ray sensor, an RF sensor, a MW sensor, an infrared thermography sensor, or an ultrasound sensor, an MR sensor, an impedance sensor, a temperature sensor, a biosensor, a chemical sensor, a radioactive-emission sensor, and a mechanical sensor.

12. (Previously Presented) The endoscope of claim 10, wherein the second instrument is configured to sense the electromagnetic sensor.

13. (Original): The endoscope of claim 1, wherein the intracorporeal portion is designed for motion in a body lumen.

14. (Original): The endoscope of claim 13, wherein the intracorporeal portion is designed for reaching the lumen by percutaneous insertion.

15. (Original): The endoscope of claim 13, configured for characterizing a tissue along the lumen wall.

16. (Original): The endoscope of claim 13, configured for characterizing a tissue outside the lumen, by penetrating the lumen wall.

17. (Previously Presented): The endoscope of claim 13, wherein the body lumen is selected from the group consisting of an oral cavity, a nostril, an esophagus, a gastrointestinal tract, a rectum, a colon, bronchi, a vagina, a cervix, a urinary tract, a bladder, a uterus, and a blood vessel.

18. (Original): The endoscope of claim 1, wherein the intracorporeal portion is designed for insertion through a trocar valve.

19. (Original): The endoscope of claim 1, wherein tissue characterization relates to the detection of a malignancy.

20. (Original): The endoscope of claim 1, wherein tissue characterization relates to the detection of a pre-cancerous state.

21. (Currently Amended): A method of tissue characterization, which comprises:

providing an endoscope, comprising:

an intracorporeal portion, configured for insertion into a body, and including:

~~an~~ a non-irradiative electromagnetic sensor for tissue characterization configured to be placed proximally to an edge of a tissue for characterization, said characterization being without penetration by said sensor of the tissue being characterized, said sensor being configured to produce electromagnetic fields, said characterization being performed by measurement of reflections of said electromagnetic fields following interaction with said tissue~~;~~;

a communication line, on which the electromagnetic sensor is mounted; and

an extracorporeal portion, configured for manipulating the intracorporeal portion;

inserting the electromagnetic sensor intracorporeally; and

characterizing an intracoroporeal tissue.

22. (Previously Presented): The method of claim 21, wherein the electromagnetic sensor is mounted on an instrument bundle.

23. (Previously Presented): The method of claim 22, wherein the instrument bundle extends beyond a distal-most end of the endoscope, with respect to an operator, and further including manipulating a distal-most end of the instrument bundle, extracorporeally, to bring the electromagnetic sensor to contact with a tissue, for characterization.

24. (Previously Presented): The method of claim 21, wherein the electromagnetic sensor for tissue characterization moves within an instrument channel.

25. (Previously Presented): The method of claim 24, and further including:

after the characterizing the intracoroporeal tissue, removing the electromagnetic sensor for tissue characterization from the instrument channel;

inserting a second instrument to the instrument channel; and

performing a second procedure with the second instrument.

26. (Original): The method of claim 25, wherein the second procedure includes taking a biopsy sample.

27. (Original): The method of claim 25, wherein the second procedure includes a localized surgery.

28. (Original): The method of claim 25, wherein the second procedure includes dispensing medication.

29. (Original): The method of claim 25, wherein the second procedure includes characterizing the tissue by an additional sensor.

30. (Previously Presented): The method of claim 24, wherein the electromagnetic sensor for tissue characterization moves within a catheter, inserted into the instrument channel.

31. (Previously Presented): The method of claim 30, and further including manipulating a distal-most end of the catheter, extracorporeally, to bring the electromagnetic sensor to contact with a tissue, for characterization.

32. (Previously Presented): The method of claim 21, and further including inserting an optical instrument to visually observe the electromagnetic sensor as it makes contact with a tissue.

33. (Previously Presented): The method of claim 21, and further including inserting a second instrument for characterizing the tissue by a second modality, together with the electromagnetic sensor.

34. (Original): The method of claim 33, wherein the second instrument is selected from the group consisting of an optical sensor, an X-ray sensor, an RF sensor, a MW sensor, an infrared thermography sensor, or an ultrasound sensor, an MR sensor, an impedance sensor, a temperature sensor, a biosensor, a chemical sensor, a radioactive-emission sensor, and a mechanical sensor.

35. (Previously Presented): The method of claim 33, wherein the second instrument is configured to sense the electromagnetic sensor.

36. (Original): The method of claim 21, wherein the inserting includes:
inserting to a body lumen from a body orifice; and
characterizing a tissue along the body lumen.

37. (Original): The method of claim 21, wherein the inserting includes:
inserting to a body lumen from a body orifice;
penetrating the body lumen; and
characterizing a tissue beyond the body lumen.

38. (Original): The method of claim 21, wherein the inserting includes:
percutaneously inserting;
reaching a body lumen;
moving along the body lumen; and
characterizing a tissue along the body lumen.

39. (Original): The method of claim 21, wherein the inserting includes:
percutaneously inserting;
reaching a body lumen;
moving along the body lumen;
penetrating the body lumen; and
characterizing a tissue beyond the body lumen.

40. (Previously Presented): The method of claim 21, wherein the body lumen is selected from the group consisting of an oral cavity, a nostril, an esophagus, a gastrointestinal tract, a rectum, a colon, bronchi, a vagina, a cervix, a urinary tract, a bladder, a uterus, and a blood vessel.

41. (Original): The method of claim 21, wherein inserting includes inserting through a trocar valve.

42. (Original): The method of claim 21, wherein tissue characterization relates to the detection of a malignancy.

43. (Original): The method of claim 21, wherein tissue characterization relates to the detection of a pre-cancerous state.

44. (Currently Amended) An in-vivo method, comprising:
providing an endoscope, having an instrument channel;
inserting into the instrument channel an electromagnetic non-irradiative sensor for tissue characterization,
placing the sensor proximally to an edge of a tissue a and mounted on communication line,;

characterizing the tissueby producing an electromagnetic field, said and measuring reflections of said electromagnetic fields following interaction with said tissue; without penetrating the tissue;

removing the sensor for tissue characterization;

inserting a second instrument into the instrument channel, to the location of the characterized tissue; and

performing a second procedure with the second instrument.

45. (Previously Presented): The method of claim 44, wherein the electromagnetic sensor for tissue characterization is a nonirradiative electromagnetic sensor.

46. (Previously Presented): The method of claim 50, wherein the additional sensor is selected from the group consisting of an optical sensor, an x-ray sensor, an RF sensor, a MW sensor, an infrared thermography sensor, or an ultrasound sensor, an MR sensor, an impedance sensor, a temperature sensor, a biosensor, a chemical sensor, a radioactive-emission sensor, and a mechanical sensor.

47. (Original): The method of claim 44, wherein the second procedure includes taking a biopsy sample.

48. (Original): The method of claim 44, wherein the second procedure includes a localized surgery.

49. (Original): The method of claim 44, wherein the second procedure includes dispensing medication.

50. (Original): The method of claim 44, wherein the second procedure includes characterizing the tissue with an additional sensor.

51. (Currently Amended): An in-vivo method, comprising:

providing an endoscope, having an instrument channel;

inserting into the instrument channel an electromagnetic, non-irradiative sensor for tissue characterization and mounted on a communication line;

extending the sensor, mounted on the communication line, to beyond the reach of the instrument channel;

characterizing a tissue by producing an electromagnetic field and measuring reflections of said electromagnetic fields following interaction with said tissue;without the sensor penetrating the tissue being characterized;

inserting a guide wire to the location of the characterized tissue;

removing the sensor for tissue characterization;

inserting a second instrument into the instrument channel, along the guide wire, to the location of the characterized tissue; and

performing a second procedure with the second instrument.

52. (Cancelled)

53. (Previously Presented): The method of claim 51, wherein the second instrument, for performing the second procedure, comprises an additional sensor, said additional sensor being selected from the group consisting of an optical sensor, an x-ray sensor, an RF sensor, a MW sensor, an infrared thermography sensor, or an ultrasound sensor, an MR sensor, an impedance sensor, a temperature sensor, a biosensor, a chemical sensor, a radioactive-emission sensor, and a mechanical sensor.

54. (Original): The method of claim 51, wherein the communication line further includes an instrument bundle.

55. (Original): The method of claim 51, wherein the second procedure includes taking a biopsy sample.

56. (Original): The method of claim 51, wherein the second procedure includes a localized surgery.

57. (Original): The method of claim 51, wherein the second procedure includes dispensing medication.

58. (Original): The method of claim 51, wherein the second procedure includes characterizing the tissue with an additional sensor.

59. (Currently Amended): A method for tissue characterization, comprising:

inserting a guide wire intracorporeally;

inserting intracorporeally, along the guide wire, an electromagnetic non-irradiative sensor for tissue characterization wherein the sensor is mounted on a communication line, said sensor producing an electromagnetic field extending into said tissue, measuring reflections of said electromagnetic fields following interaction with said tissue;; and

characterizing the tissue with the sensor using said measuring without penetration by the sensor of the tissue being characterized.

60-61. (Canceled.)

62. (Previously Presented): The method of claim 59, wherein the communication line includes an instrument bundle.

63. (Original): The method of claim 59, and further including:

removing the sensor for tissue characterization after the characterizing the tissue;

inserting a second instrument, mounted on a second communication line, intracorporeally, along the guide wire.

64. (Original): The method of claim 63, wherein the second instrument is a biopsy instrument.

65. (Original): The method of claim 63, wherein the second instrument is configured for a localized surgery.

66. (Original): The method of claim 63, wherein the second instrument is configured for dispensing medication.

67. (Original): The method of claim 63, wherein the second instrument is a sensor, selected from the group consisting of an optical sensor, an X-ray sensor, an RF

sensor, a MW sensor, an infrared thermography sensor, or an ultrasound sensor, an MR sensor, an impedance sensor, a temperature sensor, a biosensor, a chemical sensor, a radioactive-emission sensor, and a mechanical sensor.

68. (Original): The method of claim 63, wherein the second communication line includes an instrument bundle.

69. (Currently Amended): An endoscope system, which comprises:

an endoscope, comprising:

an intracorporeal portion, configured for insertion into a body, and including:

an electromagnetic sensor for tissue characterization the sensor being a non-irradiative sensor configured to be placed proximally to an edge of a tissue for characterization of the tissue without penetrating by the sensor of the tissue being characterized, the sensor being configured to produce an electromagnetic field extending into surrounding tissue, said characterization being performed by measurement of reflections of said electromagnetic field following interaction with said tissue;

a communication line, on which the electromagnetic sensor is mounted; and

an extracorporeal portion, configured for manipulating the intracorporeal portion; and

a control station.

70. (Previously Presented): The system of claim 69, wherein the control station further includes at least one of a control unit, control buttons, a keyboard, a read/write device, a signal analyzer, and a display screen.

71. (Cancelled)

72. (Previously Presented): The endoscope of claim 10, wherein the second instrument is configured for taking a biopsy sample.

73. (Previously Presented): The endoscope of claim 10, wherein the second instrument is configured for localized surgery.

74. (Previously Presented): The endoscope of claim 10, wherein the second instrument is configured for dispensing medication.

75. (Previously Presented): The endoscope of claim 13, wherein the intracorporeal portion includes a cutting tool, configured to facilitate entry to the body lumen by percutaneous insertion.

76. (Previously Presented): The endoscope of claim 13, wherein the intracorporeal portion includes a cutting tool configured for penetrating the wall of the body lumen, for interacting with a tissue outside the body lumen.

77. (Previously Presented): The endoscope of claim 1, wherein the electromagnetic sensor further includes a cutting tool, thus forming an integrated sensing-cutting device.

78. (Cancelled)

79. (Previously Presented): The endoscope of claim 78, wherein the nonirradiative electromagnetic sensor is configured for:

applying an electrical pulse to the tissue;

generating an electrical fringe field in a near-field zone of the tissue, so as to produce a reflected pulse from the near-field zone of the tissue with negligible radiation penetrating the tissue; and

detecting the reflected electrical pulse.

80. (Previously Presented): The endoscope of claim 78, wherein the nonirradiative electromagnetic sensor includes:

a resonating element, formed as a conductive structure, configured to be placed proximally to an edge of the tissue, without penetrating the tissue, and having a

diameter-equivalent D, which defines a cross-sectional area of the resonating element, on a plane substantially parallel with the edge of the tissue; and

at least one conductive lead, for providing communication with an external system,

wherein the resonating element is configured to resonate at a free-air wavelength range of between about λ and about 10λ, wherein λ is at least about ten times the diameter-equivalent D, and wherein upon receiving a signal in the range of between about λ and about 10λ, the electromagnetic sensor is configured to induce electric and magnetic fields, in a near zone, in the tissue, the near zone being a hemisphere having a diameter of substantially D, beginning with the edge of the tissue, while causing negligible radiation in a far zone, so that the tissue, in the near zone, effectively functions as part of the resonating element,

and wherein different tissue types have different resonating responses to the electromagnetic sensor, so that the tissue, in the near zone, may be categorized, by the resonating response to the nonirradiative electromagnetic sensor.

81. (Cancelled)

82. (Previously Presented): The method of claim 21, wherein the electromagnetic sensor is a nonirradiative electromagnetic sensor.

83. (Previously Presented): The method of claim 82, wherein the nonirradiative electromagnetic sensor is configured for:

applying an electrical pulse to the tissue;

generating an electrical fringe field in a near-field zone of the tissue, so as to produce a reflected pulse from the near-field zone of the tissue with negligible radiation penetrating the tissue; and

detecting the reflected electrical pulse.

84. (Previously Presented): The method of claim 82, wherein the nonirradiative electromagnetic sensor includes:

a resonating element, formed as a conductive structure, configured to be placed proximally to an edge of the tissue, without penetrating the tissue, and having a

diameter-equivalent D, which defines a cross-sectional area of the resonating element, on a plane substantially parallel with the edge of the tissue; and

at least one conductive lead, for providing communication with an external system,

wherein the resonating element is configured to resonate at a free-air wavelength range of between about λ and about 10λ, wherein λ is at least about ten times the diameter-equivalent D, and wherein upon receiving a signal in the range of between about λ and about 10λ, the electromagnetic sensor is configured to induce electric and magnetic fields, in a near zone, in the tissue, the near zone being a hemisphere having a diameter of substantially D, beginning with the edge of the tissue, while causing negligible radiation in a far zone, so that the tissue, in the near zone, effectively functions as part of the resonating element,

and wherein different tissue types have different resonating responses to the electromagnetic sensor, so that the tissue, in the near zone, may be categorized, by the resonating response to the nonirradiative electromagnetic sensor.

85. (Cancelled)

86. (Previously Presented): The method of claim 24, and further including a catheter, wherein the electromagnetic sensor is inserted into the catheter, and the catheter is inserted into the instrument channel.

87. (Previously Presented): The method of claim 86, wherein the catheter extends beyond a distal-most end of the endoscope, with respect to an operator, and a distal-most end of the catheter may be manipulated independently of the distal-most end of the endoscope.

88. (Previously Presented): The method of claim 86, wherein the distal-most end of the catheter is manipulated electronically.

89. (Previously Presented): The method of claim 86, wherein the distal-most end of the catheter is manipulated manually.

90. (Previously Presented): The endoscpe of claim 7, wherein the distal-most end of the catheter is manipulated electronically.

91. (Previously Presented): The endoscope of claim 7, wherein the distal-most end of the catheter is manipulated manually.